

"Birds, the free tenants of the air, ocean." add to the symphony of life.

VIRGINIA WILDLIFE

Published by VIRGINIA COMMISSION OF GAME AND INLAND FISHERIES, Richmond 13, Virginia

A Monthly Magazine for Higher Standards of Outdoor Recreation Through Wildlife Conservation

COMMONWEALTH OF VIRGINIA

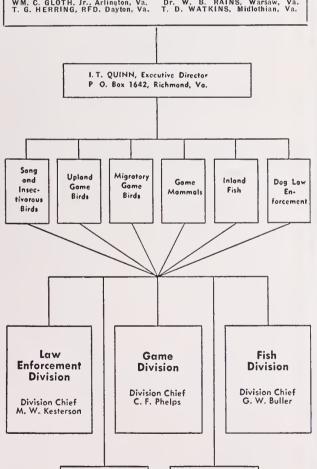


JOHN S. BATTLE, Governor

Commission of Game and Inland Fisheries

COMMISSIONERS

B. W. STRAS, Jr., Chairman, Tazewell, Va.
CHAS. D. ANDREWS. Suffolk, Va.
PRANK P. BURTON. Stuart, Va.
MM. C. GLOTH, Jr., Arlington, Va.
Dr. WM. T. PUGH. Lynchburg, Va.
WM. C. GLOTH, Jr., Arlington, Va.
Dr. W. B. RAINS, Warsaw, Va.
T. G. HERRING, RFD. Dayton, Va.
T. D. WATKINS, Midlothian, Va.



Education

Division

Division Chief

J. J. Shomon

Fiscal

Division

Division Chief Miss L. B. Layne VOLUME XII DECEMBER, 1951 NUMBER 12

J. J. SHOMON, Editor

R. R. BOWERS, Associate Editor L. G. KESTELOO, Photography
F. S. McDaniel, Circulation

In This Issue

	Page
The Christmas Spirit and the Outdoors	4
We Can Produce More Hunting and Fishin	\mathbf{g} 5
The Massanutten Mountains	10
Good Venison—From the Field to the Kito	chen 12
Wildlife Management on Virginia's State	1.0
Forests	
Your Wildlife Program Reviewed	21
The Brook Trout	26
The Wild Turkey	27
Field Force Notes	28
Drumming Log	30
Index to Virginia Wildlife	

Cover Photo

American holly (Ilex opaca) — our most universal Christmas-time plant decoration.

V.S.C.C. photo by Flournoy

VIRGINIA WILDLIFE gratefully receives for consideration all news items, articles, photographs, sketches and other materials which deal with the use, management and study of Virginia's interrelated, renewable natural resources:

FORESTS

Since wildlife is a beneficiary of the work done by State and Federal land-use agencies in Virginia, editorial policy provides for recognition of their accomplishments and solicitation of their contributions. Credit is given on material published. Permission to reprint is granted provided proper credit is given.

SUBSCRIPTIONS: One Year, \$1.00; two years, \$1.50; three years, \$2.00. Remittances by check or money order to be made payable to the Treasurer of Virginia. Local game wardens will accept subscriptions or they may be forwarded direct to Commission of Game and Inland Fisheries, 7 North Second Street, P. O. Box 1642, Richmond 13, Virginia.

Entered as second class mail matter November 10, 1947, at the Post Office at Richmond, Virginia, under the Act of August 24, 1912.

The Christmas Spirit and the Outdoors

THE BLESSED season of Christmas would not be the same without the brightening influence of the outdoors upon the church, home, school, and community. Think how dull the spirit would be if we lacked the products of the fields, woods, and gardens which mark a truly friendly, cosmopolitan Yuletide.

And, is this not as it should be? Was not the coming of the Lord Jesus at Bethlehem marked by pastoral simplicity: the wintry night sprinkled with snow; the humble stable with its friendly animals; the evergreen trees and shrubs; the flowers.

Ever since our Savior's birth, each Christian nation has made the Christmas season a festivity especially its own. The Scandinavians go to church through starlit fields of snow at midnight and scatter grain for birds. The Dutch people carry a pole through the streets and the Spaniards go to midnight mass and see the altar bedecked in green. We in America—though by no means alone in custom—brighten up with the Christmas tree, holly, mistletoe, poinsettia, the bay and rosemary, not to mention a host of animals led by the spirited reindeer.

The Christmas tree—spruce, fir, hemlock, pine or red cedar—is of course the center of Yuletide decorations. Without it, there would be something missing. Martin Luther, the reformer, is said to have first introduced it into the home in the first half of the sixteenth century. Yet, "the tree of the Christ-Child" dates further back than that. Legend has it that Saint Winfred of Britain used it as a missionary to Germany in the eighth century.

Our American holly (*Ilex*) is surely the next most well-known decorative material. Its age-old use at Christmas is indicated in the ancient carol:

Deck the hall with boughs of holly,

'Tis the season to be jolly!

Holly sprigs with its prickly points and berries bring to mind the birth of the Savior with Calvary, the thorny leaves resembling the crown and the red berries drops of blood.

The familiar mistletoe hung in the doorway or under a chandelier has been venerated down through the ages. The early Druids believed the plant possessed certain healing qualities. In due course of time it was taken over by Christian tradition and dedicated to the Christ-Child.

Comparatively modern in introduction is the "poinsettia", named after Dr. Joel R. Poinsett who as American minister to Mexico in 1829 brought the plant to his Charleston, South Carolina home. This showy plant, whose crimson bract cannot rightly be called a flower, has now become a universal Christmas decoration the world over.

The bay and rosemary are two plants that have been associated with Christmas for centuries. It was the bay tree that was supposed to have sheltered the holy family during a thunderstorm. Rosemary branches on the other hand were said to have been used to hold the little garments of the Child Jesus during the flight into Egypt to escape the wrathful order of King Herod.

But in all the decorating, the gift giving, the festivities, in all the rejoicing, we are reminded of the deeper significance of Christmas—the kindly, sincere hope that the great season will be marked by blessedness, goodness and humility, and that Peace on Earth and Good Will toward Men will reign long after the Christmas Day is over.

We Can Produce



MORE HUNTING and FISHING



By VERNE E. DAVISON

ORE THAN 25 MILLION AMERICANS hunt and fish. Many more would enjoy hunting and fishing if they had a successful place to go—and they would go fishing often if the good places were close enough. Demand exceeds supply almost everywhere. Our supply is alarmingly spotty, inadequate, and poorly developed. But don't throw up your hands in despair. You can do something better about it. In fact, if you want better hunting and fishing you'll bave to do something about it.

Today's theme in wildlife conservation should be that "we can produce more game and fish." That is the enlightening theme of a report made to the United States Senate Wildlife Committee by the Soil Conservation Service in 1951. It is a report of the successful experience of that agency's introduction of wildlife restoration into the vast agricultural activities of the nation. I can write you no more stirring story than to quote from that encouraging report. I need only add, in introduction, that the Virginia Commission of Game and Inland Fisheries and the Soil Conservation Districts of Virginia are among the forefront in planting these productive practices on hundreds of good farms in the Commonwealth.

The report: The day of depending on nature as the chief benefactor to desirable wildlife is largely past. Natural settings—and natural populations of wildlife—are splendid for parks and wilderness areas; but the American sports of hunting and fishing rely more on agricultural lands than on all else together. We have too little to hunt and fish. We need to look upon wildlife as an agricultural crop produced by agricultural methods. This is the theme developed in the present report. This concept has gradually developed from work that has been reported to this committee in previous years.

Particular attention was given to those soil and

water conservation practices of special importance to wildlife and how they fitted into conservation farming. The introduction of useful new plants such as bicolor lespedeza and multiflora rose was described. Progress in planning and establishing conservation practices such as wildlife borders, managed hedges and farm fish ponds has been recorded each year. The significant development of productive teamwork between Soil Conservation Service and state wildlife agencies working together in soil conservation districts was noted.

These principles stressed as fundamental guides in soil and water conservation have now been adopted as the basic soil conservation objective of the Department of Agriculture in the Secretary's Memorandum No. 1278 of February 15, 1951: "The basic physical objective of soil conservation activities by Department agencies shall be the use of each acre of agricultural land within its capabilities and the treatment of each acre of agricultural land in accordance with its needs for protection and improvement."

We are pleased to report now that the past year has shown continued progress in this work. Here we may say in summary that the degree of acceptance of biology conservation practices on farms and ranches and the extent to which wildlife habitat improvements have become an integrated part of conservation farming has accelerated rapidly and encouragingly. For example, we now measure the multiflora rose living fences planted annually in thousands of miles whereas less than five years ago we were struggling to obtain scattered demonstrations. Wildlife is taking its rightful place in the comprehensive conservation work in soil conservation districts.

The theme developed in our report for this year has to do with our attitude towards the wildlife



By raising the carrying capacity of the land, man can provide for more abundant wildlife. Wildlife is taking its rightful place in the comprehensive conservation work in soil conservation districts.

Soil Conservation Service photo

resources and the means by which we may hope to provide the hunting and fishing that is demanded by our people in ever increasing quantity.

Before describing this theme, we would like to draw an analogy that will help to make the key point more clear. This analogy concerns the growth of the human population of this country in 300 years and the means by which it was brought about.

Human Population Increased with More Food

Many more people live in the United States today than in primitive times. There were originally perhaps 250,000 Indians. Today there are over 150 million people. This is an increase of about 600 times. This vast number of people is fed almost wholly upon the products of about 60 kinds of plants. It is both startling and significant that few of these 60 species were native despite the fact that there were perhaps ten thousand kinds of wild plants that grew here in pre-colonial days. However, our one most important food plant, corn, was native.

Possibly even more astounding is the fact that more than 80 per cent of our food comes from but 7 plants. Furthermore, about 70 per cent comes from 3 of them—corn, wheat and oats. Much of this becomes human food when converted to meat.

Just as the human population increased greatly, a similar contrast can be made of the great numbers of domestic livestock present today compared with the few animals that lived during Indian times.

What the white man did was to raise the carrying capacity of the land for his kind by increasing the food supply. This was accomplished through plant culture and animal husbandry or, in other words, agriculture. And it is especially significant that it was accomplished with a very small number



Commission photo by Kesteloo

Wild animals have the same basic needs as humans, much of which is found in the "edge" between woodland and cropland.

of plants—plants that were developed from their original sources in all parts of the world.

Animal Populations Dependent on Food and Cover

Wild animal populations have the same basic needs as humans. The carrying capacity of the land for producing and sustaining a wild animal is determined largely by the food, water and cover available. The manageable species can be increased by the manipulation of the cover, water and food supplies just as occurred with the human population. If we want more fish and wildlife, we must grow more. *Production* is the key to harvest. To pro-

What is needed today is more wildlife production. A species that lends itself well to increased population is the white-tailed deer. Virginia's deer herds are building up fast.

American Museum of Natural History photo



Commission photo by Kesteloo

An example of improving habitat for woodland game is this small forest clearing in one of Virginia's national forests.

duce more we must provide the means of growing them—food, water and cover. This means that we must have the right plants with which to do the job and fit them into our agriculture. Since most of the manageable game species live on farms, their management must inevitably become a part of farming.

In all probability, a relatively few plants will do the job—but we must have the right plants. Today we may have some of them. Continued search throughout the world is needed to locate others. This search will take time and in the interim we must do as well as we can with the plants now available. (Editor's note: We have just received word that Mr. Davison is on his way to Rangoon, Burma,

where he hopes, during a twelve months assignment, to find promising plants for trial in the Southeastern part of the United States on his return.)

Increased Wildlife Production Needed

We need some vital changes in outdoors philosophy, to meet the needs of today. We can no longer pride ourselves in the great American tradition that nature will supply enough game and fish for everyone. The American population has outgrown in sheer numbers the capacity of our natural wildlife habitats. We have too many people to hunt and fish for the amount of wildlife present.

We didn't have enough game for the hunters among our 150 million people in 1950 and we won't have enough for 170 million in 1960 unless we grow more game and fish than we are doing now.

Conservation as we have practiced it is not enough. Conservation as we have used the term in relation to wildlife has meant only to save, to guard, to protect; consequently we have depended too much on natural production, closed seasons, bag limits, the ideals of sportsmanship, and a host of laws and regulations which do nothing more than limit the harvest—and often fail even in that. We've followed a policy of retarding losses; now we need a positive approach toward growing more.

When we stop the steady downward trend in game afield, we will do it by *production*. And, since by far the most hunting is provided by farm species, we will produce most of the added hunting by agricultural methods. Fishing, too, in most of the interior parts of our country can be made much better by the construction and management of farm ponds and lakes and the improvement of our streams through watershed control.

We must grow five pounds of fish where nature

7

DECEMBER, 1951

supports but one, and grow fish where no water exists today. We must grow two coveys of quail, two squirrels, two rabbits, two ducks, two doves, where only one is now able to live—and grow more where none at all can survive now. We must replace nature's come-what-will with man's ability to grow-what-we-want.

In the present emergency of high tensions and hard work, our outdoor recreational opportunities are more important than ever. They should be greatly expanded so that the greatest possible amount of relaxation is provided for our people.

Land Can Grow More Wildlife

Anyone who owns land can improve it; can make it produce more game or fish or both. And that opportunity exists for any lands—whether privately owned or belonging to corporations, clubs, and public agencies. We can allow these soils and waters to continue their current production of relatively meagre populations of game or fish; or we can manage them to produce more by using American intelligence and effort. Since wildlife production is a part of agriculture, the decision to produce more wildlife is not primarily one of sportsmen or sports-supported agencies but will be made by those who own and work the lands. Fish and game production is an elective to be employed or ignored as the landowner wishes.

The vast majority of our land is privately owned, and will likely remain that way insofar as we can determine in the foreseeable future. The owners are 365-days-deep in agriculture every year. Yet we are

fooling ourselves if we think the six million American farmers and ranchers are uninterested or unwilling to expend effort to grow game and fish as a part of their everyday farming. They will grow it if it is profitable for them to do so; profitable in the broad sense and not merely in terms of money. There is ample evidence to support this view in the experience of the Soil Conservation Service's work assisting landowners in soil conservation districts in the last 14 years.

Winter is a critical period for bobwhites. By producing more winter foods for farm game, such as this bicolor lespedeza, we can increase our wildlife surplus.

Commission photo by Kesteloo

Since 1935, the Soil Conservation Service has recognized an opportunity and responsibility for the welfare of wildlife in land use planning and the conservation practices we advocate. Farm owners are accepting our recommendations for wildlife production increasingly each year.

Soil Conservation Districts Include Wildlife in Program

Real assurance that farmers would grow more wildlife came after the enactment of state soil conservation district laws and the subsequent organization of soil conservative districts, which began slowly in 1937 and now embrace 1,250,000,000 acres in 2,300 districts. This already includes 73 per cent of the farm and ranch lands of the nation. Almost every district has written into its objectives "the increase and care of wildlife and fish on the farms within the district", or an equivalent statement.

Further assurance of agriculture's power to grow more game and fish comes from the simplicity and permanence of the soil and water practices which have been developed in this far-reaching program of soil and water conservation. We live year after year with the farmers who accept our suggestions. Their results must be good or our recommendations would wither for lack of acceptance. The farmers' attitude towards wildlife conservation and restoration 20 years ago was almost wholly passive. A wholly new approach has to be developed. Our progress to date is still limited owing to inadequate knowledge of what to do for each species we seek





Commission photo by Kesteloo

Still another example of habitat improvement is this brushed-out forest road that will be plowed and seeded to beneficial game foods.

to produce. Soil and water conservation has general benefits for wildlife—more ground cover, less silt in the streams, greater soil fertility—but we must not be misled into thinking these general benefits will make all the hunting and fishing we want in America. If a man wants to produce game or fish he has to feed and shelter them on his own place, or arrange for a man who owns land to do it.

Farm Fish Pouds Productive

Until 15 years ago the idea of increasing fish production by fertilizing waters was called "ridiculous, unnecessary, and impractical." There are many people who still believe natural fertility in waters will produce the fish we need. But those who speak disparagingly of modern water culture still can't show in 1951 where they have increased the harvest of fish to 100 or 200 pounds of game fish per acre in waters which naturally yielded but 10 to 20 pounds. Swingle and Smith at the Alabama Agricultural Experiment Station developed high production methods in Alabama several years ago. Results are now enjoyed by tens of thousands of farm pond owners all over the United States aided by Soil Conservation Service technicians who show them where they can have good ponds and how to manage them. A soil conservation technician can predict good yields with reasonable certainty to the landowner who will follow simple instructions on (1) selecting the site, (2) construction, (3) proper stocking, (4) fertilization, and (5) consistently good care of the pond and the surrounding land. An acre of water properly developed today can provide 10 times the fishing entertainment—and food—possible with our methods of 15 years ago.

New Plants Help Feed and Shelter Farm Game

We have developed methods of feeding quail better than man or nature ever fed them before. When we make every square foot of a one-eighthacre plot produce a heavy crop of bicolor lespedeza or japonica lespedeza seed (40 or 50 pounds per patch), bobwhites respond to this important principle of high yields of food on small areas. Landowners can afford to devote several small areas which feed wildlife poorly by nature's hodge-podge selection of grasses, trees, and various plants of meagre value to them. This technique with appropriate modifications is being adopted in the Southeast, the Gulf Coast Region, the Upper Mississippi, and the Northeastern Region of the country. New strains of these wildlife lespedezas are well along in their development for pheasants and quail in the earlier frost states north of the Mason-Dixon Line. This is probably the first time that plant foods have been improved for wildlife by the same horticultural procedures used to develop human foods.

Farm lands will not clothe and feed enough people unless fertilizer, soil culture, the right kind of plants, and the right kinds of soil and water conservation measures are applied to overcome the natural deficiencies of climate and soil. The management of wildlife land and waters is an exact parallel.

The new use of multiflora rose—another practice in the science of modern land use contributed by the Soil Conservation Service—has an influence on farm-game foods. This plant is used as a "living fence" and opens a new field for wildlife conservation on livestock farms where game production has been most difficult. The rose is a cover plant of high quality and, when used to protect food and grass cover alongside, reaches the objective of growing plenty of food and cover on a small amount of land where the owner wants game. This rose is not adapted to every part of the United States. (It is very well adapted to Virginia.) Our biologists and nurserymen are testing other thorny plants for similar use.

We must do more than find the right plants, we must determine the patterns that produce the most game. For example: we don't expect a single thorny fence between two pastures to produce much game. A double fence with a high yielding food

(Continued on page 14)

THE MASSANUTTEN MOUNTAINS

By ELMER RICHARDS

ICH IN NATURAL BEAUTY, the Massanutten Mountains have much to offer the sportsmen of Virginia. Often mistaken by tourists visiting the great Valley of Virginia for part of the Blue Ridge, the Massanutten Mountains are in reality a distinct range, independent of the Blue Ridge on the east and the Shenandoah range of the Appalachians on the west.

Located in the middle of the historic Shenandoah Valley, this unique range of rugged mountains rises to heights of 3,000 feet at Signal Knob, near Strasburg, at the north end and continues southwesterly for 45 miles to end abruptly at Massanutten Peak, near Montevideo. The entire range varies from three to eight miles in width.

Of interest to sightseers are the limestone caverns in the foothills of this mountain range. Within the mountains is located Fort Valley—a valley within a valley. The Indian name "Massanutten" is thought to mean "basket", referring to Fort Valley, which hangs like a basket within the mountains. In Fort Valley, pig iron once was produced and such names as Catherine Furnace, Elizabeth Furnace, Boyer Furnace, and Caroline Furnace are famous in pre-Civil War history. Some of these furnaces still remain and the ruins of others can be found nearby. Iron ore dug from the nearby ridges was made into ingots as early as the 1830's. Charcoal served as fuel and was made from the seemingly endless supply of timber. Manganese also was mined as late as World War I. The land is rocky and rugged, with most of the steep slopes forested. Nearly all of the timber land of the area came under the protection of the United States Forest Service 30 years ago when a total of 70,000 acres was acquired by the George Washington National Forest. All of this region is open to public hunting and fishing and is a part of the largest public hunting ground east of the Mississippi River. The range is part of the Lee Ranger District of the George Washington National Forest, with a district ranger stationed at Edinburg.

Prior to protection of this land by the national forest there was little thought of forest fires. Fires

burned annually—with little concern to the local people. Under U. S. Forest Service protection fires became less of a problem. Watersheds became improved. Trout streams began to hold water the year around. Timber began to grow and the wild game which was disappearing, due to man's wastefulness, soon began to reappear and increase.

Game, however, did not come back overnight. About 1920 it was rare indeed to see a deer in these mountains. Now that is changed. Deer can be seen today over the entire Massanutten range, firmly established through a very successful deer restocking program. Actual deer restocking began in these mountains in the 1920's. At first, small releases of deer were made by local individuals and sportsmen groups. Later the United States Forest Service and the Virginia Game Commission began to help. Deer from Michigan, New York, Pennsylvania, North Carolina and other states were released during this period. Records indicate that a total of 148 deer were stocked in these mountains during the years 1932 to 1943. A total of over 1,700 deer were

Aerial view of the main ridge of the Massanuttens. This 45-mile mountain range is rich in natural resources.

V.S.C.C. photo by Flournoy





Commission photo by Kesteloo

Deer hunting is becoming increasingly popular as whitetail herds continue to expand. Wild turkeys are also returning.

stocked in the counties west of the Blue Ridge at this time.

It soon became apparent that the restocking of deer was a success. The herd spread to other areas of the forest and even into the open farm land next to the national forest. In 1945, Rockingham and Page counties declared open season on bucks. Warren County at the northeastern edge of the Massanuttens opened its season in 1947. Shenandoah County, which contains most of the range, had an open deer season on national forest land in 1945. Within the last few years deer have increased in some sections to exceed the carrying capacity of the land. This is reflected in the number of complaints of deer damage to crops, orchards, and forest reproduction. Accordingly, the deer season on this section of national forest land was lengthened from three to five days. Many of the local people can already see the need for herd control in the near future.

Actual wildlife management in the region began about 1938. At that time the George Washington National Forest and the Virginia Commission of Game and Inland Fisheries agreed to cooperatively manage the wild game living on the forest. Shortly afterwards, the "one dollar forest stamp" was issued for the privilege of hunting and fishing on the national forests in Virginia. Such stamp money is financing game and fish management work on these lands. Further aid for game management work in Virginia was made possible when Congress passed the Pittman-Robertson Bill. Under this bill an 11 per cent excise tax was placed on all guns and ammunition. The money, thus annually collected by the federal government, is made available to the states on the basis of the number of hunting licenses and land acreage of the states and

is earmarked to be spent directly on game management work. Under this law, Virginia obtains 75 cents of Pittman-Robertson funds for each 25 cents expended by the state for wildlife restoration work.

Wildlife management has been going on for eleven years on the Massanuttens. Most of the work is concentrated on the southern end of the range, but all 70,000 acres of this mountain will be improved for game. The work is done by two game managers, employed full time by the Game Commission. These men act also as special game wardens. Each game manager supervises two laborers, who assist him in carrying out the job of improving the habitat for wildlife. The game manager is largely concerned with creating openings or clearings in the dense forest cover. He also spends much time in maintaining old abandoned farms, orchards, fields, sawmill sites, and log landings for game's use.

As a rule, a typical wildlife clearing covers an acre in size. After trees and brush are removed, the clearing is planted to orchard grass, ladino clover, or Kentucky fescue grass. Small grains, such as wheat, rye, or milo maize, are planted where wild turkeys are found. Effort is made to plant the suitable food for the type of game present in the area. Blight resistant chestnuts, grown from experimental nurseries within the forest, are being planted for game. In some areas of the Massanutten range, wildlife foods such as apple, wild crab, thornapple, persimmon, chinquapin, and native viburnums have been established for wildlife. On areas where such foods already exist all competing growth is cut away to allow these valuable wildlife foods freedom to grow. Thousands of white pine, red pine, and spruce have been planted where winter cover is lacking. The game manager also widens logging roads and sows such areas to grass and clovers. Over two hundred wildlife clearings and many miles of forest roads have thus far been improved for wildlife's benefit. A bit later in the season the game manager "sprouts" wildlife patches, spreads lime and fertilizer, improves waterholes for game, and puts out salt licks for deer.

During the winter months the game manager traps bobcat and fox. Twice each month the game manager walks a game census trail, noting all wildlife and signs of game in and about his clearings. As spring comes he marks the forest boundary and scouts for new work. Trout stocking takes place in early spring and many fine trout are put in the popular trout streams of the Massanuttens.

Most types of game sought by Virginia hunters can be found on the Massanuttens. In 1949, Bruce

(Continued on page 20)

GOOD VENISON—

From the Field to the Kitchen

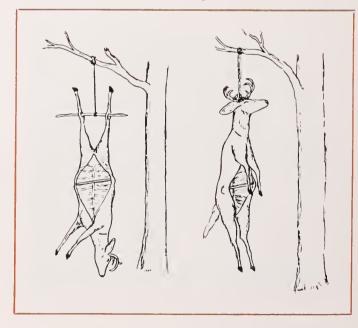
By HENRY S. MOSBY

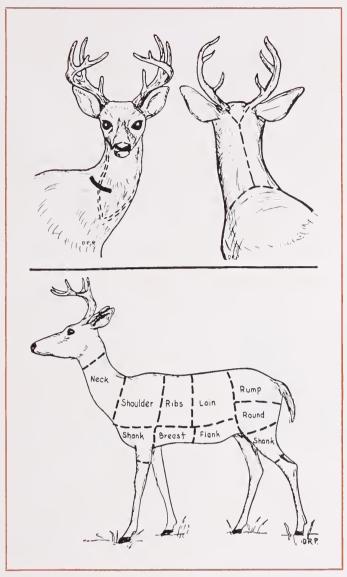
T IS COMMON KNOWLEDGE that meat is a high price commodity these days. So, if you are lucky enough to kill your deer this year, take good care of the meat and it will make you independent of this charge in your food bill for a long period of time. For example, a mature 175 pound deer will weigh about 125 pounds hog dressed. From this, you should obtain about 100 pounds of meat, 87.5 pounds of which are usable. Further, of this 87.5 pounds of usable meat, you should get about 39 pounds of steak, 27 pounds of roast, 10 pounds of miscellaneous cuts, and about 11 pounds of scrap meat that may be used in stew. If you carefully bleed, cool, age, and freeze your venison—your wife will naturally cook it in such a delicious manner that you wouldn't swap a good deer steak or roast for any one-dollar-per-pound of "store boughten" meat.

Here in Virginia we are accustomed to hunting in groups and when one of the group is lucky enough to bag a deer, the kill usually is divided among the entire party. Therefore, even if you are not the lucky deer hunter, you will be interested in properly preparing and preserving the section of the kill which is parceled out to you. Suppose, however, that you are the fortunate hunter who brings down a nice buck; what should you do to keep the meat in the best possible condition for the whole party? If you can get to your deer before it is completely dead, it is recommended that bleeding be done as this reduces the possibility of meat spoilage. In order to bleed a deer most effectively, sever the blood vessel which passes up the neck on either side of the spinal cord. Many hunters make the mistake of cutting the deer's throat immediately below the lower jaw; when this is done, the proper artery is seldom cut, there is very little bleeding, and the head is ruined so far as making a trophy is concerned. However, your deer meat is not ruined merely because it is not bled, but unbled venison should receive careful attention during later cooling and aging periods.

It is of great importance to cool the deer just as rapidly as possible in order to keep the meat fresh and sweet. Rapid cooling is essential as this retards bacterial growth which causes meat to spoil. The first step in this cooling process is to remove the entrails as soon after death as possible. In order to do this—or hog dress the animal—the deer may be laid out on sloping ground with the head uphill or it may be swung from a branch of a tree, head up. With the deer in either of these positions, cut through the hide and belly muscles, from the brisket to the vent, being careful not to cut into the internal organs. Next, sever the breast bones from the diaphragm to the neck, opening the body cavity from the neck to the pelvic bone. Sever the windpipe and gullet and permit the entrails to roll downward, by cutting the muscles which attach them to the back and sides, until you get to the pelvic bone. Now, carefully cut through the soft bone at the center line of the pelvic bones. The divi-

Two methods of suspending deer for cooling. Hanging by the antlers is preferred where the trophy is to be saved. Note stick in body cavity to hasten cooling.





TOP: If the mantle and antlers are to be saved, make cuts as shown by dotted lines. Note black line (left sketch) indicating incision for best bleeding.

BOTTOM: For best results, cut up deer carcass as shown by broken lines.

sion of the pelvic bones will permit the removal of the large intestine along with other entrails to which it is attached. During the entire process of removing the viscera, care should be taken not to cut the "stomach", intestine or the bladder for should any matter from these sources get on the meat, it will taint it to some degree. Of course, save the liver as it is one of the choice portions; some people also save the heart. Swab out the body cavity of the deer with a dry cloth if available or with dry leaves, grass, or any other dry material at hand. Never wash out the body cavity with water; don't even use a wet cloth for this purpose. It is alright to leave a coating of blood over the inside of the deer as many persons do this purposely so as to provide a glaze that reduces the drying of the meat while being aged.

Many hunters prefer to hang the deer by its antlers so that none of the blood will foul the mantle and antlers while it is cooling. Hanging the deer by placing a stout stick through the gambrels of the hind legs and suspending it head down is equally satisfactory so far as rapid cooling is concerned, although this position is not recommended if you wish to preserve the trophy. Next, prop open the body cavity with sticks so that air may circulate readily and thus hasten cooling.

Many deer hunters are so enthusiastic about showing off their buck that they transport their kill home—with several appropriate detours through Main Street—with the deer conspicuously draped over the radiator. This is the most appropriate place to display the deer, but the heat from the engine may cause the meat to spoil. Even a good sized buck may be placed in most car trunks or strapped across the rear bumper where it is well away from engine heat.

If you want to show off your deer even at the risk of spoiling the meat, then you probably would not be interested in the following discussion of skinning, aging, and preserving your one hundred or more pounds of delicious venison.

After the deer has cooled out—preferably by leaving it hanging over night—it is ready for skinning and butchering. If the trophy is to be saved, start the cut of the hide at the shoulders so that the taxidermist will have a good mantle with which to work. Cut the hide along the inside of each leg extending it to the belly opening, and completely cut off each leg at the shank. After these cuts have been made, the hide may be pulled free of the carcass and the knife will seldom be needed. If the trophy is to be saved, make the cuts up the back of the neck and saw off a portion of the skull with the antlers attached. The mantle should be cleaned of blood by sponging with cold water and allowed to dry. Salt both the hide and the mantle heavily to prevent decomposition.

Many persons think that deer meat is normally tough, but this is not true. Even Grade "A" beef is tough until it is aged, as aging at the proper temperature is necessary in tenderizing any meat, with the possible exception of meat from very young animals. This tenderizing is merely a chemical action which breaks down the muscle tissue, and time—and proper temperature—is necessary for this reaction. So, any hunter who trys to fry a steak from a deer killed the same day is in for a disappointing experience unless the deer happens to be an illegal fawn! Therefore, most butchers recommend that a deer be aged for about one week (Continued on page 20)

MORE HUNTING AND FISHING

(Continued from page 9)

and spots of grass cover in between will doubtless support rabbits and quail. We now have some of these new patterns established and will measure the results in game in due time.

We are making headway in our search for a plant of dependability to feed doves; another to support deer; still another of primary use to wild turkeys; and others for muskrats, waterfowl, etc. Our objective is to have at least one plant—the most outstanding, the most practical, the least costly-for each kind of wildlife we want to prosper. These tests are well along but will need to continue for a long time. Nevertheless they illustrate part of the philosophy we present. (Editor's Note: The food referred to above for "doves" is pokeberry. The

Soil Conservation Service introduced it successfully in Virginia this year—will expand its use in 1952.)

Wet Lands Pose Problem in Land Use

The problem of feeding our migratory waterfowl better in Southeastern wintering grounds is another in the story of soil and water conservation. Farmers, soil conservation districts, and Soil Conservation Service technicians are developing appropriate recommendations for the best use for these wet lands, including their

use for waterfowl, furbearers and other wildlife.

···IIIIIII

We believe it will be possible to help ducks most by applying a principle of producing better quality habitat on areas which an owner can afford to manage.

Wildlife Can be Increased by Agricultural Methods

We would like to refer back to a statement we made before this Committee February 14, 1950. We quoted then from the 1930 American Game Policy relative to problems of the private land owner: "We must compensate him either publicly or privately—with either cash, service, or protection —for the use of his land and for his labor on condition that he preserve the game, feed, and otherwise safeguard the public interest." We added a statement: "The wildlife profession has not yet come forth, 20 years later, with any reasonable plan for compensating the landowner for keeping his land in production for wildlife."

We now want to expand that statement, to make the point that, interestingly enough, it is the soil conservation districts that are showing the way to greater wildlife abundance through the soil and water conservation work of the American land-

This proposition, of showing the American landowner how to grow more game and fish developed steadily through the last 15 years. We have found the hunters and fishermen turning whole-heartedly to this agricultural development for wildlife restoration. The landowners like it. Those who tried it first are enlarging their efforts; setting aside additional land for game; building more and better ponds.

The technicians and administrators in many state game and fish departments have adopted this phi-

> losophy. They are giving material aid in soil conservation districts where the new agricultural techniques have been demonstrated successfully. The growing, universal acceptance of this work has reached the stage which makes the theme of this report timely and significant.

> Much more than the hunter, the American farmer makes the decision day after day as to how farm game will be produced upon his land. The Soil Conservation Service has shaped the simplified techniques for agricultural production of wildlife as

a part of its on-site assistance to landowners in every state. The soil conservation districts through which we work have obtained cooperation in these efforts from the Fish and Wildlife Service, State Game Departments, a few Agricultural Experiment Stations, and numerous agricultural leaders, truly teamwork in getting applied conservation.

RZUCH

This philosophy for producing more wildlife has progressed far but we still urgently need three things:

- (1) Completion of a national land and water inventory including greater detailed surveys of the wet-lands so important to waterfowl.
- (2) More opportunity for the selection of new plants, testing and measuring results of better ways to manage water and soil for agricultural benefits to fish and game.
- the custodian of farm game, pond fish, and wildlife (Continued on page 25)

(3) Recognition of the role of the landowner as

VIRGINIA WILDLIFE

CONSERVATIONGRAM

Late Wildlife News . . . At A Glance

- HUNTERS ARE CAUTIONED ABOUT FIRES. I. T. Quinn, executive director of the Commission, issued a warning to all Virginia hunters last week to be doubly cautious while smoking in the woods. "Game and fish," he said, "are a product of the fields, forests, and waters and when the woods burn irreparable damages follow. Hunters are urged to be very careful with their cigarette and pipe ashes and to report all forest fires to the nearest forest warden." He also pointed out that "the destroying and smoking out of dens in trees, besides being an unethical practice, is against the law and all sportsmen are asked to report such violations to the nearest game warden."
- CHECKING STATIONS SET UP FOR BIG GAME AND TURKEYS. While the general hunting season got off to a successful start on November 20 and big game seemed plentiful, the game division issued another reminder last week that "all deer, bear, and wild turkeys, must be checked in at official tagging stations." In past years, only deer and bear had to be tagged, but this year the wild turkey has been included in the list of game to be checked. Checking stations have been set up in all counties where hunting of this species is permitted. Through the registration of all bagged turkeys, valuable information will be obtained which will aid in the future management of the species for the sportsmen of Virginia.
- VIRGINIA SHARE OF D-J FUNDS NAMED. According to information from the U. S. Fish and Wildlife Service, Virginia sport fishermen may expect a total of \$40,607.62 in Dingell-Johnson funds from the federal government for its fisheries restoration work next year. As in the case of the Pittman-Robertson Act, the new one-year old law, known as the Dingell-Johnson Act, enables the various states to obtain their pro-rata share of the 10 per cent federal excise tax on fishing tackle. Monies must be used on fisheries restoration projects.
- VSO TO MEET IN FEBRUARY. The Virginia Society of Ornithology will hold its 1952 annual meeting in Williamsburg, Virginia, February 15-16, 1952. Headquarters will be the Williamsburg Presbyterian Church opposite the College of William and Mary on the Richmond road. Besides the customary banquet, speaker and movies, there will be an exploratory trip into the field on Saturday. All sessions are open to those interested in Virginia birdlife.
- NEW BIRD AND MAMMAL CHARTS ORDERED. The education division of the Commission of Game and Inland Fisheries has just placed an order with the Ketterlinus Corporation of Philadelphia for 1,000 four-color bird and mammal charts which will be used in resource-use education work. The large 20 x 30 inch charts, cover both the mammal and the bird groups, and will be sold at cost to schools and groups at \$1.50 per set or 50 cents for individual charts. Since only a limited supply has been ordered, schools, clubs, and individuals wanting them should place their "hold" orders with the education division immediately.
- WATERFOWL REGULATIONS EASED SLIGHTLY. Improved production of waterfowl in the Canadian duck factory provinces allowed the U. S. Fish and Wildlife Service to grant additional days of hunting for waterfowl this season.

The Atlantic, Central, and Pacific flyways have been granted 5 additional shooting days this year, while the Mississippi flyway got 10 additional days, restoring the 5 day cut from its season last year. For the first time in several years, the Atlantic flyway was granted an open season for brant. Only 10 days were granted—November 22 to December 1.

The open season on ducks, geese, and coot in Virginia runs from November 22 to January 5. Shooting hours are one-half hour before sunrise until one hour before sunset, except that at Back Bay no hunter shall be permitted to leave the shore before one-half hour before sunrise and shall not be allowed to fire his gun before sunrise. Bag limits are: ducks, 4 a day, 8 in possession after first day, 1 of which may be a wood duck; geese, 2 Canada geese a day, 2 in possession; coot, 10 a day, 10 in possession; brant, 3 a day, 3 in possession.

DECEMBER, 1951

ONE YEAR OF WILDLIFE

(Commis:



JANUARY. With purchase of 2000-acre Hog Island on the James River, the Commission began the task of developing the site as a major waterfowl refuge.



FEBRUARY. Improving the 1,500,000 acres of public shooting land on Virginia's two national forests, favoring deer, turkey and grouse, continued unabated through the P-R program.



MARCH. Research in the field of wildlife management continued at the Commission-supported Virginia Cooperative Wildlife Research Unit at V.P.I.



APRIL. Major farm-game activities during the year centered around the planting of 1,872,000 bicolor lespedeza slips for quail and other small game.



MAY. Highlight of Commission's conservation education work is the annual wildlife essay contest in the public schools. Here Governor Battle makes the grand prize awards.



JUNE. Latest addition to the Commission's string of fish hatcheries is the new "Buller" smallmouth bass hatchery in Smyth County. Bass production will be doubled.

NSERVATION IN VIRGINIA

photos)



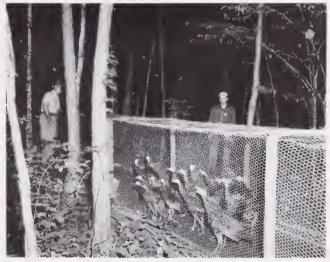
JULY. Education in resource-use received a boost with the employment of conservation education specialist R. E. Merritt to work with schools, camps, and clubs.



AUGUST. Annual school for wardens and conservation officers took place again at V.P.I. Here Col. Woodson of the State Police addresses the game law enforcement group.



SEPTEMBER. Development of the 2800-acre Hawfield tract in Orange County as a demonstration area for farm game continued. The model farm is open for public inspection.



OCTOBER. Virginia's unique wild turkey restocking program showed marked success. A total of 1626 turkeys were planted during 1951 in areas needing brood stock.



NOVEMBER. Game fish restocking continued as a major fish division activity during the year. Tons of large fish—trout, bass, crappie, and sunfish—are stocked annually.



DECEMBER. The year's end saw better law enforcement work among game wardens, conservation officers, and the air patrol. Closer liaison between state and federal wardens now exists.



Commission photo by Kesteloo

Cooperation is the keynote to the forest-game program on the state forests.

By C. H. SHAFFER

HE SUCCESS of the Game Commission's wildlife programs can be attributed to many factors. Perhaps one of the most important is the fine spirit of cooperation which various agencies show in participating with the Commission on certain land-use projects. Much has been written about the cooperative features of the "Virginia Plan" on the national forests of Virginia, and also about the outstanding cooperative agreements between the Commission and the 22 Soil Conservation Districts. Still another highly successful coordinated effort which deserves mention is the existing pact between the Virginia State Forest Service and the Game Commission. Since 1940 foresters and wildlifers have jointly been managing three of Virginia's state forests in an attempt to produce a sustained yield of both timber and wildlife.

The three state forests involved, which were purchased by the U. S. Department of Agriculture under Title 3 of the Bankhead-Jones Farm Tenant Act and leased to Virginia for state forest purposes, are located in the counties of Appomattox, Buckingham, Cumberland and Prince Edward. These forests adopt the names of the counties where they are located. There are approximately 40,000 acres on these tracts, 95 per cent of which is forested.

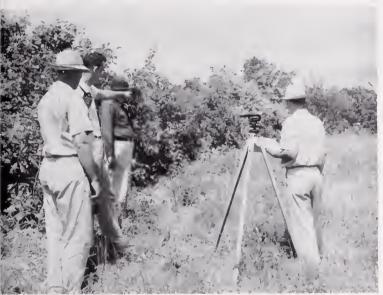
Through the years these forests have proved to be a valuable asset to the people of the Commonwealth. Here mature timber trees are marked and harvested, usually by local operators, with the counties receiving 25 per cent of all gross proceeds from the sales. Here, too, experimental plantings are made and observed and many forest management practices are tested. The state forests serve as demonstrational areas for agricultural students and landowners to observe what can be done to conserve the forest resources on their own land. Still another value derived from these areas is the recreational facilities available for hunting, fishing, hiking and picnicking.

Over a decade ago officials of the Forest Service of the Virginia Conservation Commission and the Commission of Game and Inland Fisheries worked out a cooperative working agreement which has proven mutually beneficial to the two agencies and to the people of Virginia in particular. It was early recognized that wildlife species could be managed without interfering with forest management practices, and at the same time, add to the recreational value of these areas.

The state forests have all the game species common in the central Piedmont. Here can be found

wild turkeys, deer, quail, rabbits, squirrels, foxes, raccoons, opossum, doves and occasionally grouse. During migrations waterfowl frequent the five lakes present on the forests. Muskrats and mink can be found along the streams. Since the areas are predominantly timberland, management practices are aimed at benefitting the so-called forest species, turkeys and deer; while of necessity, the farm game species receive secondary consideration.

From the start it appeared that lack of an allyear food supply was the limiting factor for wild turkeys and other game. As a result, one of the principal activities on the forests has been the crea-



Commission photo by Mullins

It is essential to both cooperating state agencies that the boundaries of the forests be surveyed, marked and posted.



Commission photo by Crawford

The objective of the wildlife management work on the state forests is an annual harvest of game for the sportsmen.

tion of clearings and the subsequent planting of these areas to beneficial food. It was originally agreed that about one per cent of the 40,000 acres would be devoted to wildlife management.

Before any work is initiated, the state forest supervisor and the wildlife manager together select sites to be cleared and planted. In the event that there is any harvestable timber on the tract, arrangements are made accordingly. Through the years this clearing and maintenance work has been carried out, until now there are close to 250 different wildlife plantings on the three forests. Approximately half of these are planted to permanent pasture mixtures of ladino clover and Kentucky fescue and orchard grass. The balance of the establishments are seeded to annual seed mixtures.

In order to keep additional acreage under cultivation, around 50 acres are rented out yearly to local farmers. Here again the forest supervisor and the wildlife manager together select the areas to be leased. One quarter of the crop, either corn, small grain or lespedeza, is returned to the project as rent. The grain is used for emergency feeding during the winter or sold on the open market with the funds reverting to the project to be used for the management work.

It is essential to both cooperating agencies that the boundaries of the forests be well marked and posted. Periodically, personnel from the state Forest Service and the Game Commission brush out the 300-odd miles of forest boundaries and designate the lines with posters and painted blazes. In order to provide the game with a protected haven during public hunts, game sanctuaries have been established on each of the three forests. All of the sanctuaries are surrounded by a single strand of wire and are further indicated by metal signs posted at strategic places.

Each year a limited amount of predator control work is carried on. This effort to keep wildlife populations in balance is undertaken by the wildlife manager or by the leasing of trapping rights to local trappers. Here again one-fourth of the proceeds from the sale of the furs is returned to the project to help defray cost of management. Surplus raccoons are live-trapped yearly from the forests and are sent to depleted sections of the state for restocking.

Law enforcement is considered an important phase of state forest activities. The wildlife managers and forest service personnel are constantly vigilant to discover evidences of illegal hunting. County game wardens also collaborate in patrolling

(Continued on page 25)

THE MASSANUTTEN MOUNTAINS

(Continued from page 11)

Orndorff, of Winchester, took home a huge buck deer from the Fort Valley section that weighed close to 225 pounds. It had a "rack" of 23 points and won top honors in the "State Big Game Trophy Contest" held in Richmond the following year. Deer are plentiful on the Massanutten ridges. The heaviest deer kill is made each year in the upper Fort Valley and Crisman Hollow sections.

Black bear are scattered along the entire range, but are hunted heaviest south of New Market Gap. Interest in bear hunting in this mountainous country has increased very much in the last few years. Organized bear hunting clubs are now established in many of the towns bordering the Massanuttens.

The wild turkey is not common any place on the Massanutten range. Yet this much sought-after bird is maintaining a foothold; however, no increase can be forecast. Most turkeys actually are shot by deer and squirrel hunters who chance to come upon them. A closed season on turkey hunting might allow this fine bird to stage a comeback in many areas on the national forest.

Ruffed grouse hunting should be good this season on the Massanutten Mountains. A decided increase is very apparent in most areas. Squirrels are abundant on much of the range. Some sections have the highest concentration of "bushy tails" the writer knows of on the entire national forest. Bobcat, fox, and raccoon are also common enough to afford good hunting.

Fishing should not be overlooked in this area. Of interest is the state hatchery located at Waterlick at the extreme north end of the Massanutten Range. Visitors are always welcome. For trout, anglers might try beautiful Cub Run, located near Catherine Furnace. Pitt Spring and Narrow Passage are two crystal trout streams that lure back the fly addicts year after year. Anyone caring to fish for bass or sunfish, should try the North and South Forks of the Shenandoah River. These two great fishing waters border the Massanutten Range on the east and west and are worth investigating.

This unique mountain range reflects Man's awakening to the importance of conservation. At one time, Indians roamed its slopes in quest of abundant fish and game. Virgin white pine and hemlocks once grew thick here. Then came the early white settlers who cleared, cut, and burned. For several generations the land was badly mauled. Placed under U. S. Forest Service administration over 30 years ago, this mountain land has since been carefully protected from fire.

GOOD VENISON

(Continued from page 13)

at a temperature of from 37 to 40 degrees. The time of aging depends, of course, on how old the deer may be; if it is a real old buck, it may be necessary to age it for as much as 10 days while young deer would require less than one week. It has been found that deer meat will age satisfactorily in the home refrigerator. Therefore, if you receive, as a member of a deer hunting party, a section of deer as your part of the kill, place it in your refrigerator—making sure to put it in a pan that will hold the juices which will seep out—and let it age there.

Venison is butchered exactly like beef and the cuts of meat from a deer are identical to those from a yeal. Of course, the size and thickness of the various cuts will depend upon individual preference or the needs of the family. Properly aged venison may be frozen, and saved for later use, with no loss of flavor. All deer meat which is to be frozen should be cut into the proper size cuts, and carefully wrapped with foil or waxed freezing paper in air tight packages. Such cuts as steaks and chops should be wrapped flat and separated one from the other by pieces of foil or paper. Of course, all packages of wrapped venison should be carefully labeled so that the desired cuts may be selected at some later date. It is recommended that frozen venison be thawed before it is cooked.

One word of caution: many camp-butchered deer are cut up into halves and quarters with a hatchet or an axe, rather than with a saw. Be optimistic and take your butchering saw with you on your next deer hunt. If you don't and you have to use an axe or a hatchet for butchering your deer, we would give you the same admonition given us by an excellent old negro cook: "Fo' the Lord's sake honey, look out fo' dem bone splinters."

DECEMBER AUTHORS.

VERNE DAVISON—We Can Produce More Hunting and Fishing. Mr. Davison is regional biologist, U.S.D.A., Soil Conservation Service, Southeastern Region, Spartanburg, S. C.

ELMER RICHARDS—The Massanutten Mountains. "Lem" is a Commission game technician located at Keezletown, Virginia.

HENRY S. MOSBY—Good Venison—From the Field to the Kitchen. Dr. Mosby is leader of the Cooperative Wildlife Research Unit at V. P. I., Blacksburg, Virginia.

C. H. SHAFFER—Wildlife Management on Virginia's State Forests. "Kit" is a Commission game technician located at Lynchburg, Virginia.

Your

WILDLIFE PROGRAM

Reviewed

A THREE-YEAR PROGRESS
REPORT ON VIRGINIA'S
LONG-RANGE GAME & FISH
RESTORATION PROGRAM

Fiscal years 1948-49, 1949-50, 1950-51

covering

- · Basic Objectives
- Game Restoration
- Fish Management
- Law Enforcement
- Education Program
- Fiscal Accounting

I. T. QUINN, Executive Director

COMMISSION OF GAME AND INLAND FISHERIES

COMMONWEALTH OF VIRGINIA

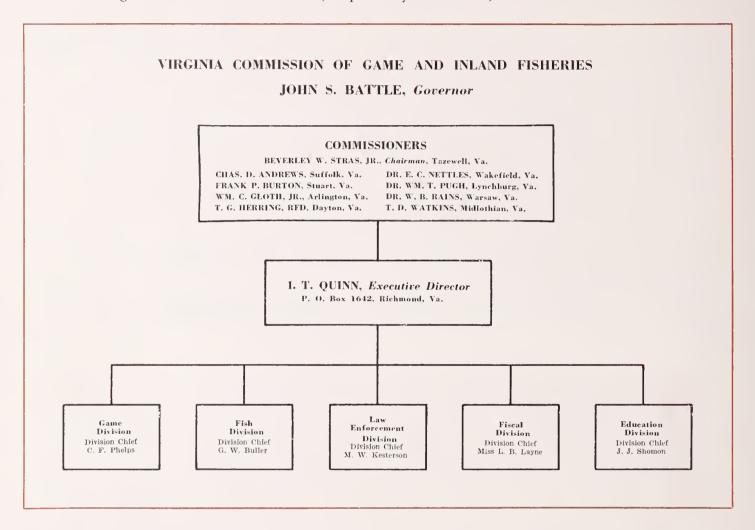
Richmond, Virginia

DECEMBER, 1951 21

PURPOSE, POLICY and OBJECTIVES

VIRGINIA'S COMMISSION of Game and Inland Fisheries, under the laws of the Commonwealth, is charged with the protection and perpetuation of the wildlife and inland fish resources of the state, and is expected to so manage these resources that they will benefit the widest number of people for the longest time, without danger to the existing supply.

The basic organization of the Commission, as presently constituted, is as follows:



In order to maintain the existing supplies of wildlife and inland fisheries and to improve hunting and fishing in the future, the Commission believes that we must:

- (1) Protect our existing supplies of wildlife by adequate law enforcement.
- (2) Strive to increase those forms of wildlife that yield to the tools of wildlife management.
- (3) Maintain and wherever possible restore habitat for wildlife.
- (4) Restock wildlife by artificial propagation or transfer from one area to another only such numbers and species as may be needed for reproductive brood stock or in case of fish such numbers and species as may be needed to furnish brood stock and balance or supply recreational sport where otherwise little would exist.
- (5) Support only such restrictions on wildlife harvesting as may be good for the species and sound management.
- (6) Conduct only such game and fisheries research as may be practical, economical, and beneficial.
- (7) Cooperate with the State Water Control Board in the curbing of existing pollution of our state's inland waters.
- (8) Strive for wise and efficient wildlife administration to the end that monies spent from the "Game Protection fund" will give full value received.
- (9) Stress conservation education so that our citizens will have better understanding of and the need for the wise use of our natural resources.
- (10) Extend cooperation to all land-use agencies, clubs, and individuals to obtain these objectives.

GAME RESTORATION

The state's game program is based largely upon the principle of habitat maintenance and improvement. Wildlife, in order to survive and multiply, must have adequate food and cover 365 days a year. The Commission's program for farm game, forest game, and marsh wildlife is geared in this direction. Experience in game management shows that wildlife can only exist or increase to the limits of suitable living space and favorable environment.

The Commission's main developments by the Game Division during the past three years were as follows:

- (1) Purchased and began developing Hawfield, a 2,800-acre farm tract in Orange County, where the public can witness farm-game restoration work in actual practice, and when needed to conduct wild-life research.
- (2) Wildlife habitat improvement on farms totalling 2,028,571 acres through the work of the Pittman-Robertson program; direct cooperation with some 6,983 landowners.
- (3) Planted 3,569,250 Lespedeza bicolor plants for quail and other farm game; also, distributed 55,068 pounds of game food seeds for farm and forest game plantings.
- (4) Purchased and began developing Hog Island on the James River for waterfowl and marsh wildlife.
- (5) Added to the staff of trained game technicians, bringing present total to twelve.
- (6) Accelerated wild turkey restoration program by restocking 3,248 birds in areas deficient of brood stock.
- (7) Restocked the following in localities needing brood stock: rabbits—19,272; quail—16,134; raccoon—2,196; deer—145; beaver—117; bear—3.
- (8) Developed several plant nurseries for the raising of bicolor and other plants for seed and plantings.
- (9) Intensified habitat improvement work on national and state forests, and on farms through the Soil Conservation Districts.
- (10) Continued wildlife research work by cooperating with the Virginia Wildlife Research Unit at V.P.I.

FISH MANAGEMENT

Responsibility for the development of the Commission's inland game fish program rests with the FISH DIVISION. For more than 20 years Virginia's fish policy has been based on the premise that the restocking of game fish is necessary in order to provide more and better fishing. In case of trout, the restocking of two-year-old fish provides a grand type of sport where almost none would exist. Furthermore, most fish finally end up in the angler's creel, giving greatest return for monies received.

In the case of bass and other game fishes, restocking not only provides better balance but also improves the strains of fish and the quality of fishing.

MAJOR ACCOMPLISHMENTS during the last three fiscal years can be summarized as follows:

- (1) Restocked some 400 tons of large trout in the state's 132 trout streams.
- (2) Released some 250 tons of large bass and other game fish in the warmer public waters.
- (3) Expanded Stevensville fish hatchery in King and Queen County by adding additional ponds and buildings, increasing production of largemouth bass, crappie, and bream by 20 per cent.
- (4) Constructed Lake Gordon, a 157-acre publish fishing lake in Mecklenburg County. Annually stocked and open to fishing.
- (5) Improved Montebello Trout Rearing Station in Nelson County. Carrying capacity increased by 50 per cent.
- (6) Augmented trout production at the big Marion Trout Hatchery by additional construction.
- (7) Planned and constructed new smallmouth bass hatchery in Smyth County. This is expected to double output of game fish in this area.
- (8) Employed several fisheries technicians to handle investigative work on major impoundments and public fishing waters.

LAW ENFORCEMENT

THE COMMISSION'S LAW ENFORCEMENT Division made important strides during the period. Most notable accomplishments during the last three fiscal years have been:

- (1) Steady improvement in the efficiency of the law enforcement staff. Total convictions during the three-year period were: game 6,043; fish 6,813; and dog 12,689.
- (2) Law enforcement personnel disposed of a total of 98,807 unclaimed, wild, or loose running dogs during the period.
- (3) Set up an air patrol for tidewater Virginia and tightened coastal boat and air liaison in law enforcement.
- (4) Established better communications among wardens by use of radio.
- (5) Resumed and intensified annual school for wardens and conservation officers at Virginia Polytechnic Institute.
- (6) Contributed some \$165,000 to the state Literary Fund through law enforcement fines.
- (7) Allowed adequate monthly traveling expenses for game wardens.
- (8) Established the position of chief of Law Enforcement in the Richmond office of the Commission.
- (9) Assisted in game and fish restocking and habitat improvement work and with conservation education in the various counties.

DECEMBER, 1951

EDUCATION PROGRAM

Education in wildlife conservation and in the sound use of our natural resources received particular stress during the fiscal period July 1, 1948 to June 30, 1951. Highlights of information-education activities conducted by the EDUCATION DIVISION during this period were:

- (1) Continued improvement of the Commission's monthly educational magazine *Virginia Wildlife*. Paid circulation was expanded from 4,000 to 10,000.
- (2) Inauguration of a motion picture production program resulting in the production of three sound and color motion pictures on Virginia's wildlife and the partial completion of two others.
- (3) The start of a film loan service to schools and clubs and the acquisition of 30 conservation films with a three-year total film audience of 100,000.
- (4) The annual promotion of a statewide wildlife essay contest in the public schools of Virginia with close liaison work with the State Department of Education.
- (5) Lithographing, printing and the distribution of some 28,000 posters on safety with firearms and game conservation.

- (6) Start of a regular weekly news service to the press and clubs of the state, plus the issuance of an educational bulletin (Executive Director's Educational Bulletin).
- (7) Start of a special services conservation program in the field giving direct assistance to schools, nature camps, and clubs.
- (8) Annual broadening of the Commission's weekly wildlife radio and monthly television education programs.
- (9) Printing and distribution of several publications and leaflets on the state's wildlife including the Commission's latest 88-page publication "Birdlife of Virginia" of which 5,000 copies were supplied to the schools of the state through the State Department of Education.
- (10) A continued and expanding use of portable exhibits at schools and public gatherings and the setting up of an annual education exhibit at the Atlantic Rural Exposition

REPORT ON COMMISSION'S EXPENDITURES

SOURCE OF FUNDS. Revenue to the Commission is derived from the sales of hunting, fishing and trapping licenses, 15 per cent of the income from dog licenses, federal aid appropriations (Pittman-Robertson funds and Dingell-Johnson funds), the sale of publications and other miscellaneous items. All monies go into the special "Game Protection Fund" and no public tax money is used by the Commission in its wildlife conservation work, its activity being entirely self-supporting. The Commission also contributes to the "State Literary Fund" by law enforcement "fines." The annual contribution runs around \$55,000.

Actual Expenditures, Fiscal Year 1948-1949

Function	Amount Spent	Percent of Grand Total
Law Enforcement	\$ 418,558	+0.00
Game Division	283,730	27.12
Fish Division	150,427	14.38
Capital Outlays	87,247	8.34
Education Division	+2,700	4.08
Fiscal Division	30,320	2.90
Administration	28,++1	2.72
Property Maintenance	4,856	0.46
Grand Total	\$1,046,279	100.00

Actual Expenditures, Fiscal Year 1949-1950

Function	Amount Spent	Percent of Grand Total
Law Enforcement	= \$ +67,935	33.75
Game Division		24.50
Fish Division	152,901	11.00
Capital Outlays		22.25
Education Division	58,372	4.50
Fiscal Division	23,486	1.67
Administration	28,405	2.00
Property Maintenance	5,113	0.33
Grand Total	\$1,385,798	100.00

Actual Expenditures, Fiscal Year 1950-1951

Function	Appropriation	Percent of Grand Total
Law Enforcement	\$ 492,590	36.70
Game Division	371,908	27.70
Fish Division	154,558	11.51
Capital Outlays	192,325	14.33
Education Division	78,470	5.85
Fiscal Division	22,073	1.65
Administration	30,401	2.26
Property Maintenance		
Grand Total .	\$1,3+2,325	100%

Current Appropriation, Fiscal Year 1951-1952

Function	Appropriation	Percent of Grand Total
Law Enforcement		26.99
Game Division	6+1,757	38.09
Fish Division	226,597	13.45
Education Division	99,800	5.92
Capital Outlays	179,925	10.68
Administration		2.60
Fiscal Division	38,202	2.27
Grand Total	\$1,684,995	100%
Less payment deficit	200,000	,
Appropriation	\$1,484,995	

Requested Appropriation for the Biennium 1952-54

Function	Appropriation	Percent of Grand Total
Law Enforcement	\$1,119,440	34.22
Game Division	960,480	29.36
Fish Division	547,435	16.73
Education Division	172,790	5.28
Capital Outlays	326,450	9.98
Administration .	76,900	23.50
Fiscal Division	68,020	2.08
Grand Total	\$3,271,515	100%
Note: Estimated from Pittman Robertson funds Estimated from Dingell-Johnso	500,000	
funds	95,000	

Note: The disbursements of the Commission shall be limited to the amount appropriated by the General Assembly from the game protection fund and in no event shall the State pay obligations that may be incurred by said Commission or be liable in any manner therefor except to the extent of the game protection fund.

WILDLIFE MANAGEMENT ON VIRGINIA'S STATE FORESTS

(Continued from page 19)

the forests to help minimize the loss of game populations from poaching.

Naturally, the ultimate objective of all state forests wildlife management activities is to produce a supply of game which can be harvested by sportsmen. Approximate inventories of wildlife populations are maintained and these results are utilized as the basis for setting up regulations for the state forest controlled hunt. Every fall, officials of the state Forest Service and the Game Commission meet to determine what game species can be hunted and also to set the time and bag limits for the hunt. Generally speaking, deer and small game have increased remarkably during recent years. The wild turkey, which is considered the most important species on these forests, has remained more or less static in population, for reasons not vet determined. As a result the hunting of turkey and grouse has not been permitted during the last few years, in the hope that by protecting the brood stock an increased turkey population would eventually evolve which would again be able to withstand the tremendous hunting pressure exerted during the week of the public hunt. All other game species have been open to general hunting with the state bag limits being enforced.

The state forest hunt usually occurs during the first week in December and is the big event of the year in these areas. Approximately 600 hunters engage in the various types of hunting on the forests. The hunt is open to the public and all sportsmen are required to check in at contact stations before and after each day's hunt so that a fairly accurate record can be kept on game collected. Most of the hunting pressure is on the Virginia whitetail, but other species come in for their share. During the 1950 controlled hunt, the following game was checked through the contact stations: 25 deer (5 of these were illegal), 104 quail, 18 squirrels, 29 rabbits, 3 foxes, 7 raccoons and 9 ducks. Through the years there have not been any hunting accidents nor forest fires during the state forest hunts.

The Cumberland State Forest serves sportsmen of Virginia in another way. It is not generally realized that all of the turkeys stocked throughout the state have been raised on the Cumberland through a unique technique of breeding captivity-reared turkey hens to native wild gobblers. An excess of 4000 turkeys have been raised here during the past two years. Most of the turkeys are stocked in counties where the turkey population has been extir-

pated. Thus through cooperative effort, the Virginia Forest Service and the Game Commission are directly or indirectly attempting to stock wild turkeys throughout the Commonwealth.

There is still another benefit derived from these publically managed forests. Each year experimental plantings are made within their boundaries and observations are recorded and the results passed on to the general public. For instance, over a period of years the Virginia Forest Service and the Game Commission have been planting blocs of mast producing trees and checking the results closely. Various plants and seed mixtures are tested on these areas where observation of their utilization by the various game populations can be made. During recent years a bicolor lespedeza nursery has been established and maintained on the Cumberland Forest, resulting in a great saving to the Commission. Seed blocs for the production of shrub lespedeza seed have also been planted on the Cumberland. Thus, in addition to providing public hunting and furnishing wildlife (turkeys and raccoons) for restocking in other sections of the state, the state forests are a prime source of wildlife seed and plants used throughout the Commonwealth.

It can readily be seen that the cooperative efforts of the Virginia Forest Service and the Commission of Game and Inland Fisheries are paying dividends to the public on the state forests of Virginia. Everyone is welcome to visit the forests, whether to engage in their recreation or to witness the wildlife and timber management demonstrations there. All that is asked is that the game laws be obeyed and that everyone do his part in the effort to "Keep Virginia Green."

MORE HUNTING AND FISHING

(Continued from page 14)

generally when it is produced on his land as a result of his efforts. We must give the landowner incentives to produce larger amounts of huntable game. Greater custodial recognition and privileges is the first encouragement needed. It should give him the right to say who can harvest the crop and under what conditions. It is logical enough to deny the landowner full custodial rights as long as the game is there through no effort or expense to the farmer. Today, however, a man is entitled to full control of the products he grows by his own intelligence, his work, and his operating expenses.

DECEMBER, 1951





THE BROOK TROUT

ATURE SPARED NO EFFORT when she designed the speckled brook trout. Sleek of line with a kaleidoscope of colors, spots, and mottlings, it holds a tender place in the heart of every disciple of Izaak Walton.

The brook trout is found, principally, in the eastern half of the United States. The species is found native from Georgia to Labrador, and as far west in Canada as Saskatchewan.

The color of the brook or speckled trout varies greatly from time to time, from very light to very dark. One of its distinguishing characteristics is the square tail. It has lower fins which are reddish with a white fringe on the edge. The scales are very small, and there are no teeth at the base of the tongue.

One of the names given the brook trout is mountain trout. Perhaps the reason for this is that you must go to the mountains to find them. There is good reason for the best brook trout fishing being in this location. In the mountains the waters still flow clean, clear and fast. That is, in most mountains we find such conditions. These conditions are necessary to the life of the trout, for it cannot stand the warmer, sluggish waters of the bottomlands. The mountains, as a general rule, have suffered the least from man and his ingenuity.

The brook trout spawns from October through November in Virginia, but nowhere along the Appalachian chain, even in the more northern states, is there a great native reproduction of trout. This is because many of the tiny springs and branches in which trout spawn have been destroyed by lumbering operations, intensive cultivation of the lands and silting. These conditions have also affected the natural foods in the trout waters which remain. Because of the lack of food, trout hatched in streams attain very little size, making it unwise to stock small trout. In stocking operations, the size and number of trout released usually exceeds the carrying capacity of the stream. This is considered a safe practice, however, since it is known that a large percentage of the fish will be caught during the following open season.

To offset the lack of suitable water for natural reproduction in Virginia, the Commission stocks about 75,000 brook trout each year. None of these are less than two years old when stocked, and they range from 14 to 17 inches.

The Commission has adopted a policy of holding over a great number of year old trout until they are two years old or older, with the result that many of the trout which are released are from 18 to 20 inches long. This is a good practice and adds bigger thrills and enjoyments to the fisherman. However good this practice may be, mere man cannot make a wild trout. He cannot make a fish wary, sly nor difficult to catch. These are inherent qualities belonging only to the truly native wild trout, and only when we can make the conditions suitable for it to live, reproduce and thrive, will we have native brookies in greater abundance again.



THE WILD TURKEY

THE WILD TURKEY is America's largest and most highly prized game bird. It is native only to North and Central America.

When Cortez invaded Mexico about 1519, he found that the Aztec emperor fed a large domestically-reared bird to the carnivorous animals of his menagerie, and that this bird was also highly prized as a table delicacy. It is possible that Cortez took this bird back to Spain, for soon after he returned to Europe the presence of the turkey was reported throughout the continent. The colonists of North America then brought this Mexican bird with them to America from Europe.

From the wild turkey the domestic turkey is distinguished principally by the difference in coloration. Our domestic breeds have white tips on the coverts, while these feathers in the eastern wild turkey, the bird found in Virginia, are chocolate colored. The wild bird is more streamlined, more wary, and better adapted for flight than his barnyard cousin. This characteristic, together with the difference in coloration, provide the surest means of identification.

The turkey is a ground-living, gallinaceous bird, which also makes its nest on the ground. A crudely formed shallow depression forms its nest, which holds the 7 to 20 white eggs. These eggs are splotched, with a rust-like appearance. The hen deserts the nest quickly, and to flush her from the nest may prove fatal to the brood. It is a wise man who does not disturb a nesting turkey in any



manner. The hen incubates the eggs and rears the young without the assistance of the gobbler. Normally the hatch comes off about June, and by hunting season in the fall the young hens will weigh about 6 or 8 pounds, while their brothers will weigh from 8 to 10 pounds.

About 6,800 turkeys are killed each season. In order to perpetuate the sport and to protect the wild turkey population from excessive drain, the Commission of Game and Inland Fisheries is engaged in a broad restoration and management program for the species.

Management of the habitat is undertaken on Virginia public lands, such as the 40,000 acres that comprise the three state forests, and the 1,500,000 acres within the two national forests. Further, the district technicians of the Commission work with any agency, group or individual in drawing up and executing management plans for increasing the wild turkey population on any suitable area in the state. Of great importance is the Commission's field force of over 100 wardens, who enforce the laws designed to give the turkey a chance to raise its young.

All efforts are directed toward the objective of perpetuating this wily bird so that we may enjoy him now and have him for those who live after us. We can protect the turkey only as much as the people of Virginia are willing to have it protected. Wardens can help, but more than this, the turkey needs friends on the land who live on the land, and who want it to remain.

DECEMBER, 1951 27



Report on The Dead Deer Situation

Deer have been found dead in appreciable numbers in Alleghany and Bath counties. This is an attempt to summarize briefly what is known about this incident and what has been done in an attempt to determine the cause or causes of these deaths, as submitted by Dr. Henry S. Mosby, of the Virginia Cooperative Wildlife Research Unit.

Ray Jenkins, game warden of Bath County, first had it reported to him on August 17 that several deer had been found dead in Douthat State Park, on the edge of Alleghany and Bath counties. When he returned to his county following the 1951 Game Warden School, at Blacksburg, he received additional reports of dead deer in Douthat. On August 29, a group from the Wildlife Unit went to Douthat and was fortunate enough to secure a deer specimen, an adult lactating doe, which had died at 3 p.m. on that date. In addition, they brought a pet deer back to Blacksburg, known as Bambi, which had been sick previously but which was apparently well at the time they picked him up. Bambi was a yearling buck.

The dead deer was autopsied by Dr. W. B. Bell, college veterinarian, on the night of August 29. No pathological conditions were noted in the deer and the cultures taken gave no results. The intestines were practically devoid of food and the "stomach"



Photo by Gordon Brown

Dr. W. B. Bell, college veterinarian, assisted by Dr. Henry S. Mosby, performs postmortem on diseased deer. Standing, left to right: unidentified man, warden Jenkins, conservation officer Bunch and Messrs.

Ford and Gathwright.

was as near empty as is possible in a ruminant.

Bambi continued in apparent good health until Saturday, September 1, and at 2 p.m. he became sick. By 7 p.m. that night he was down and could not get up. He was picked up at 8 p.m. and had a temperature of 106.6° and a respiration rate of from 150 to 180 per minute. He died. Bambi was autopzied and no pathological conditions were noted except that his intestinal tract was nearly empty. Cultures were taken from muscle tissues, heart, blood, liver, and spleen. An injection from each of these tissues was prepared and injected into both rabbits and guinea pigs. Neither the cultures nor the injections gave any results.

"We have checked the various angles of this sitnation," reports Mosby, "and it is the concensus of opinion that the cause of the death of these animals probably is associated with the diet. The possibility of the deer having taken vegetation which had been sprayed with a herbicide was considered but field evidence did not bear this out. It would be difficult to imagine an infectious pathogen which would be viral enough to affect deer in two different watersheds with the rapidity observed in this ease. In short, we still do not have a definite idea as to what may be causing the death of these animals and the need for fresh specimens is urgent. The next step, as we see it, is to obtain material from a fresh specimen and to inject this material into calves or, preferably, control deer."

Mr. Jenkins, as of September 16, reported that he had personally determined and investigated 32 deer which were dead. Mr. Hanks, of Alleghany County, had investigated 4 dead deer but it is not known if there was any duplication in these figures. Reports have also been received that other animals, such as crows, buzzards and dogs, are being found dead in this vicinity, but such reports have not been authenticated by field investigation, so far as we know.

Up to date, a total of 45 dead deer have been personally examined by game wardens. The last dead deer reported was on September 27.

Twenty-Ninth Field Trials Held

The State's fox hunters turned out in great numbers for the "State Fox Hunter's Association's" 29th annual field trials and bench show at South Hill, ou October 22, 23, 24.

In the neighborhood of 250 hounds let loose with one synonymous howl, as the hounds' master gave the signal to "cast off" at a cool, and hazy 7:00 A.M., October 23.

Following the chase of the morning and afternoon, a bench show was held where owners looked on, as some of the finest in fox hound flesh passed by to be judged.

Note From a Game Warden

Warden Elon Sheetz, game warden for Shenandoah County, has been taking his own wild game census in his county for several years. Each time that he is in the field he keeps track of all the wild game that he sees.

Last month warden Sheetz submitted to us some facts which he gathered while in the field, on a threeday patrol.

On September 20, Sheetz reports seeing 10 deer, 13 grouse, 46 squirrels, 5 hawks, 2 doves, 1 quail and 1 rabbit. On September 24, he saw 19 squirrels, 2 deer, 4 grouse and 7 quail. On October 4, he reports that he saw 13 squirrels, 1 deer and 3 coveys of quail having 18, 6 and 12 birds in each covey, respectively.

Warden Sheetz has kept his own game records for several years and reports that he has seen more small game in Shenandoah County this year, than he has seen any year in the last ten.

Migrating Casualties

In a period of two days, in the middle of October, two migrating casualties were reported and recorded at the office of the Commission.

A pied-billed grebe and a Holboell's grebe were brought into the Commission's office. They both were very much alive, but apparently had met with some type of mishap along their migrating routes. Both were suffering from injured wings.

A Word of Warning

If you have a shotgun that has Damascus or steel twist barrels—be careful! Your old pride and joy can erupt in your face and cause you much loss of personal ego, if not result in injury.

We can cite a good example of what is meant by this. Dr. E. C. Nettles, member of the Game Commission from Wakefield, issued a warning to H. T. Clark of Sussex County about using high velocity shells in his double barrel gun with Damascus barrels. Mr. Clark had to learn the hard way.

Recently he took the gun into the woods, trying for a squirrel. Loaded with high velocity shells, he let one charge go at a bushytail, only to have the gun burst in his face, cutting his hand. Lucky Mr.



Commission photo by Shomon

Proof positive that H. V. shells in twist barrels are dangerous. Left to right, Dr. Nettles, H. T. Clark (note bandaged left hand). G. L. Munford, and conservation officer J. B. Nicholson.

Clark now passes on Dr. Nettles' advice: "Don't shoot H.V. shells in Damascus twist barrels!"

Big Cat Falls Prey to Richmonder

Lauren P. Cayton from Richmond, was hunting bear in the Dismal Swamp, in October, when he noticed signs of a wildcat in the area.

He stalked the cat for a short time and came across it sneaking along the swamp edge. He dropped it with one shot through the head.

Taylor brought the cat to the Commission in Richmond where it was weighed and measured. It weighed 35 pounds and measured 36 inches from tip of nose to tip of tail.

The Commission is having the big cat mounted at Randy's Sportshop for display in the hearing room of the Commission's Richmond office.



Commission photo by Bowers

Dismal Swamp bobcat is held by William Pitts and Richmond City game warden Julian Hill.



SOUTHEASTERN TROUT STREAMS NEED SHADE

It is well known that trout are extremely sensitive to stream temperature, 80° being about the upper limit for rainbow and brown trout, and 75° the warmest that eastern brook trout can tolerate. A year's temperature measurements from two feeder streams on experimental watersheds in the southern mountains of Georgia emphasize the importance of shade in keeping stream temperature below these limits of tolerance. One of the tested streams flowing through heavy hardwood forest never exceeded 66°, which is considered optimum temperature for brook trout. The other, of similar size and location, but flowing through a typical, cleared mountain farm, showed weekly maximum summer temperatures running as high as 79° and ranging 9 to 23° above those of the forest stream. August was the warmest month for the farm stream, and September for the forest stream. The importance of shade in managing streams for trout was illustrated by the fact that on a hot day the farm stream dropped from 80 to 68° after meandering through 400 feet of forest and brush cover. Indications are that on certain streams shady banks or cleared banks can mean the difference between trout or no trout.

CARE OF DEER HIDES

Literally tons of deer hides are wasted each season because many sportsmen know nothing about how to save them. Buckskin makes excellent gloves, jackets, and other wearing apparel.

The skinned hide should be

stretched out, flesh side up, and sprinkled with two or three pounds of salt. Skins not treated will decay quickly. Wet skins should be stretched and dried in a shady, airy place. Those exposed to strong rays of the sun, or put before a fire, will dry unevenly, causing the hide to become brittle. Such is the case, also, of hides not treated with salt.



One day my bolt jamed and we became fast friends.

BUCK LAW OUESTION

Maine has never had a buck law. Sportsmen bag deer regardless of sex. They have ample proof that this works to the good of both deer and sportsmen. The annual bag has averaged over 35,000 deer for the past three years—and in a state half the size of Missouri. Maine deer have steadily increased in size and improved in condition. In 1925, a 200-lb. deer was a rarity. Last year 837 deer were bagged that weighed over 200-lbs. and 55 went past 300-lbs. Few buck law states produce deer of that size. Some buck law states report that their herds are decreasing in stature, antler development and reproductive vigor. Yet, many sportsmen throw up their hands when a no-sex law is mentioned.

PAPAL HOBBY

It's common knowledge that the Jack Miner Bird Sanctuary at Kingsville, founded nearly a half-century ago, has attracted worldwide attention, both during the lifetime of the late Jack Miner and since. Crowning this record comes the announcement that in 1950 the sanctuary was featured in the press of the world more than any other Canadian institution or activity.

Last summer it was learned that the hobby of Pope Pius XH was the study of birds. He would get up early in the morning, go to his garden and devote half an honr to his feathered friends. Accordingly, a collection of photographs of the late Jack Miner and his birds at Kingsville was forwarded to His Holiness. Manly F. Miner has now received an acknowledgment from the Pope in which the Papal bird lover expresses his "paternal gratitude and abundant divine blessing."

NEW TYPE AUTO ASH TRAY

An antomatic 7-second snuffer is a feature of an auto ash tray which clips on to front vent windows called "Auto-butt-ler," this device also provides for the safe parking of a lighted cigarette, and empties cold butts and ashes outside without being detached. Manufacturer is Stock Car Products, Inc., New Hayen, Conn.

This simple device, if employed on a wide scale, could do much to prevent needless forest fires caused by discarded eigarettes from automobiles.

Index to Virginia Wildlife

Volume XII

January, 1951 to December, 1951

	NISTRATION			HUNTING	
our Commission's Accomplishment				Turkey Hunting in The Deep South_ By G. C. Carleton Jan.;	p.
in 1950et's Put the Emphasis on Restora	By I. T. Quinn Mar.;	p.	4	Archery Hunting in Virginia By Elmer V. Richards Feb.; A Report on The 1950-51 Deer Sea-	
tionn Organization There is Strength	By I. T. Quinn Aug.;		4 16	sonBy Chester F, Phelps Mar.; Appointment With ClappersBy John H. Gwathmey Sep.;	
Congressman Looks at Wildlif	e		5	Big Levels To Be Opened To Hunt-	
our Wildlife Program Reviewed		-		ing By E. M. Karger_ Sep.;	p.
	BIRDS			LAND MANAGEMENT	
hree Million Canvasbacks	By William S. Snow_ Mar.;	p.	10	The Way To Game Abundance By W. B. Grange June;	
he Wood Duck Housing Shortage_				If You Want More Quail By Ned Thornton Sep.;	p.
error in The Moonlight	By J. J. Shomon June;	p.	21		
he Jack Miner Bands				LAW ENFORCEMENT	
irds and Small Fish Ponds				"A Trial Justice Looks at The Game	
he Bobwhite Quail				Law" By Cecil E. Wright. July;	p.
he Mourning Dove he Clapper Rail					
he Wild Turkey				LOCALES	
hat About The Grouse?				Virginia's Eastern Shore By R. T. Speers Apr.;	12
ur Disappearing Birds				Sandy Level By K. E. Graetz Apr.;	
he Virginia Society of Ornithology				The Massanutten Mountains By Elmer Richards Dec.;	
oserving The Wild Turkey	By Arthur A. Dugdale Nov.;	p.	18	The Management Meanagement of the Management of	1, .
CONSERVA	TION (GENERAL)			MAMMALS	
raining For Peace	_ By William G. Vinal Jan.;	p.	4	Skunks of Virginia By R. T. Speers Jan.;	
and, Water and Wildlife	By Dr. H. H. Bennett Jan.;	p.	5	Nature's Slickest Fat Man By George Heinold July;	p.
om My Office Window	By Lloyd Swift Aug.;	p.	8	Lumberjacks of The Animal King- dom By "Scally" Maurice Aug.;	-
litorial: Waste Means Poverty				Tally-Ho!—The Fox By Charles D. An-	ν.
1 · 1 · 117 · 117 · 11 · 11 · 0	son Aug.;			drews Oct.;	n.
hich Way Will We Go e Plant and Animal Community_	By R. R. Bowers Sep.;		5 10	The Antlers of the Whitetail By W. C. Newman _ Nov.;	
e Can Produce More Hunting an F i shing		p.	5	RECREATION	
				Camp Monocan By Robert A. Giles,	
CONSERVA	TION EDUCATION			JrFeb.;	p.
onservation Education from a Wild				For a Healthy Vacation By L. J. Roper, M.D. July;	
lifer's Viewpoint			4	The Blue Ridge Parkway By Sam P. Weems July;	
utdoor Education in Reality					
on s ervation Over The Air Waves_ d uc ation's Role in Resource Use_			4	SAFETY AFIELD	
	_ By Taur B. Seats July,	17.	-12	Look Before You Shoot By J. W. Courtney,	
Г	DIŠEASE			Jr Oct.;	p.
ontrolling Diseases in The Wil					
Turkey	By Dennis Hart June;	p.	10	WATER	
	FISH			The James—Famous Rivers Series	
hose Scrappy Smallmouths		p.	18	No. 4 By Ross O. Walker_ Jan.;	p.
	By Hugh O'Neill June;		18 6	No. 4 By Ross O. Walker_ Jan.; That Mattaponi—Famous River Se-	p.
ream—Prince of Panfishhe Largemouth Bass	By Hugh O'Neill June; By Dr. E. C. Nettles_ Aug.; Inland Fish Series Sep.;	р. р.	6 21	No. 4 By Ross O. Walker_ Jan.; That Mattaponi—Famous River Series No. 5 By John H. Gwath-	
ream—Prince of Panfish he Largemouth Bass he Smallmouth Bass	By Hugh O'Neill June; By Dr. E. C. Nettles. Aug.; Inland Fish Series Sep.; Inland Fish Series Oct.;	р. р. р.	6 21 20	No. 4 By Ross O. Walker Jan.; That Mattaponi—Famous River Series No. 5 By John H. Gwath- mey Feb.;	
ream—Prince of Panfish the Largemouth Bass the Smallmouth Bass the Rainbow Trout	By Hugh O'Neill June; By Dr. E. C. Nettles. Aug.; Inland Fish Series Sep.; Inland Fish Series Oct.; Inland Fish Series Nov.;	р. р. р.	6 21 20 20	No. 4 By Ross O. Walker Jan.; That Mattaponi—Famous River Series No. 5 By John H. Gwath- mey Feb.; The New River—Famous River Se-	p.
ream—Prince of Panfish ne Largemouth Bass ne Smallmouth Bass ne Rainbow Trout	By Hugh O'Neill June; By Dr. E. C. Nettles. Aug.; Inland Fish Series Sep.; Inland Fish Series Oct.; Inland Fish Series Nov.;	р. р. р.	6 21 20 20	No. 4 By Ross O. Walker Jan.; That Mattaponi—Famous River Series No. 5 By John H. Gwath— mey Feb.; The New River—Famous River Series No. 6 By Dean Rosebery Mar.;	p.
eam—Prince of Panfish le Largemouth Bass le Smallmouth Bass le Rainbow Trout le Brook Trout	By Hugh O'Neill June; By Dr. E. C. Nettles Aug.; Inland Fish Series Sep.; Inland Fish Series Oct.; Inland Fish Series Nov.; Inland Fish Series Dec.;	р. р. р.	6 21 20 20	No. 4 By Ross O. Walker Jan.; That Mattaponi—Famous River Series No. 5 By John H. Gwath— mey Feb.; The New River—Famous River Series No. 6 By Dean Rosebery Mar.; The York River—Famous River Series Series No. 6 By Dean Rosebery Mar.;	p.
ream—Prince of Panfish ne Largemouth Bass ne Smallmouth Bass ne Rainbow Trout ne Brook Trout	By Hugh O'Neill June; By Dr. E. C. Nettles Aug.; Inland Fish Series Sep.; Inland Fish Series Oct.; Inland Fish Series Nov.; Inland Fish Series Dec.;	p. p. p.	6 21 20 20 27	No. 4 By Ross O. Walker Jan.; That Mattaponi—Famous River Series No. 5 By John H. Gwath— mey Feb.; The New River—Famous River Series No. 6 By Dean Rosebery Mar.;	p.
eam—Prince of Panfish Largemouth Bass E Smallmouth Bass E Rainbow Trout E Brook Trout F shing—Tonic For Frayed Nerves	By Hugh O'Neill June; By Dr. E. C. Nettles Aug.; Inland Fish Series Sep.; Inland Fish Series Oct.; Inland Fish Series Nov.; Inland Fish Series Dec.; FISHING By R. W. Eschmeyer. Mar.;	p. p. p. p. p. p.	6 21 20 20 27	No. 4 By Ross O. Walker Jan.; That Mattaponi—Famous River Series No. 5 By John H. Gwathmey Feb.; The New River—Famous River Series No. 6 By Dean Rosebery Mar.; The York River—Famous River Series No. 7 By Malcolm H. Harris,	p.
ream—Prince of Panfish the Largemouth Bass the Smallmouth Bass the Rainbow Trout the Brook Trout fishing—Tonic For Frayed Nervestout Prospects that is There To Trouting	By Hugh O'Neill June; By Dr. E. C. Nettles. Aug.; Inland Fish Series Sep.; Inland Fish Series Oct.; Inland Fish Series Nov.; Inland Fish Series Dec.; FISHING S. By R. W. Eschmeyer. Mar.; By Beverley W. Stras May; By J. J. Shomon May;	p. p. p. p. p. p. p. p.	6 21 20 20 27	No. 4 By Ross O. Walker Jan.; That Mattaponi—Famous River Series No. 5 By John H. Gwath—mey Feb.; The New River—Famous River Series No. 6 By Dean Rosebery Mar.; The York River—Famous River Series No. 7 By Malcolm H. Harris, M.D Apr.; The Rappahannock—Famous River Series No. 8 By James Wharton May;	р. р.
ream—Prince of Panfish the Largemouth Bass the Smallmouth Bass the Rainbow Trout the Brook Trout Final Properties that is There To Trouting st of Stocked Waters and Water	By Hugh O'Neill June; By Dr. E. C. Nettles. Aug.; Inland Fish Series Sep.; Inland Fish Series Oct.; Inland Fish Series Nov.; Inland Fish Series Dec.; FISHING S. By R. W. Eschmeyer. Mar.; By Beverley W. Stras May; By J. J. Shomon May;	p. p. p. p. p. p. p. p. p.	6 21 20 20 27 8 4 8	No. 4	р. р. р.
ream—Prince of Panfish Largemouth Bass Largemouth Bass Le Rainbow Trout Le Brook Trout For Frayed Nerver Tout Prospects Lat is There To Trouting St of Stocked Waters and Wate Open To Public	By Hugh O'Neill June; By Dr. E. C. Nettles Aug.; Inland Fish Series Sep.; Inland Fish Series Oct.; Inland Fish Series Nov.; Inland Fish Series Dec.; Inland Fish Series Dec.; Inland Fish Series Dec.; Ishing By By R. W. Eschmeyer. Mar.; By Beverley W. Stras May; By J. J. Shomon May; Iss May;	p. p. p. p. p. p. p. p. p.	6 21 20 20 27 8 4 8	No. 4	р. р. р.
eam—Prince of Panfish Largemouth Bass E Smallmouth Bass E Rainbow Trout E Brook Trout Shing—Tonic For Frayed Nerver out Prospects hat is There To Trouting st of Stocked Waters and Wate Open To Public ther-Son Fishing Week Proclaime	By Hugh O'Neill June; By Dr. E. C. Nettles. Aug.; Inland Fish Series Sep.; Inland Fish Series Oct.; Inland Fish Series Nov.; Inland Fish Series Dec.; FISHING By By R. W. Eschmeyer. Mar.; By Beverley W. Stras May; By J. J. Shomon May; The strain of the series of	p.	6 21 20 20 27 8 4 8	No. 4	p. p. p. p. p. p. p.
eam—Prince of Panfish Largemouth Bass E Smallmouth Bass E Rainbow Trout E Brook Trout Shing—Tonic For Frayed Nerver out Prospects hat is There To Trouting St of Stocked Waters and Wate Open To Public ther-Son Fishing Week Proclaims (Editorial)	By Hugh O'Neill June; By Dr. E. C. Nettles Aug.; Inland Fish Series Sep.; Inland Fish Series Oct.; Inland Fish Series Doc.; Inland Fish Series Dec.; Inland Fish Series Dec.; FISHING By By R. W. Eschmeyer Mar.; By Beverley W. Stras May; By J. J. Shomon May; sed June;	p. p	6 21 20 20 27 8 4 8 2. 13-14	No. 4	p. p. p. p. p. p. p.
eam—Prince of Panfish Largemouth Bass Rainbow Trout Be Rainbow Trout Be Brook Trout Fout Prospects hat is There To Trouting st of Stocked Waters and Wate Open To Public ther-Son Fishing Week Proclaims (Editorial) ve Bait, Flies, or Plugs	By Hugh O'Neill June; By Dr. E. C. Nettles Aug.; Inland Fish Series Sep.; Inland Fish Series Oct.; Inland Fish Series Nov.; Inland Fish Series Dec.; FISHING By By R. W. Eschmeyer. Mar.; By Beverley W. Stras May; By J. J. Shomon May; TS May; By G. May; By F. M. Huddlestun. July;	p. p. p. p. p. p. p. p.	6 21 20 20 27 8 4 8 9. 13-14	No. 4	p. p. p. p. p. p. p.
ream—Prince of Panfish Largemouth Bass Largemouth Bass	By Hugh O'Neill June; By Dr. E. C. Nettles Aug.; Inland Fish Series Sep.; Inland Fish Series Oct.; Inland Fish Series Nov.; Inland Fish Series Dec.; FISHING By By R. W. Eschmeyer. Mar.; By Beverley W. Stras May; By J. J. Shomon May; TS May; By G. May; By F. M. Huddlestun. July;	p. p. p. p. p. p. p. p.	6 21 20 20 27 8 4 8 9. 13-14	No. 4	p. p. p. p. p. p. p.
ream—Prince of Panfish Largemouth Bass Re Rainbow Trout Re Rainbow Trout For Prayed Nervest of Prospects Lat is There To Trouting Stocked Waters and Wate Open To Public Chat is There To Trouting Stocked Waters and Wate Open To Public Chat is There To Trouting Stocked Waters and Wate Open To Public Chat is Tipe To Public Chat is Tipe To Plugs The Bait, Flies, or Plugs The Bait, Flies Differentiate Color?	By Hugh O'Neill June; By Dr. E. C. Nettles. Aug.; Inland Fish Series Sep.; Inland Fish Series Oct.; Inland Fish Series Dec.; Inlan	p. p	6 21 20 20 27 8 4 8 9. 13-14 4 16 18	No. 4	p. p. p. p. p. p. p.
ream—Prince of Panfish the Largemouth Bass the Smallmouth Bass the Rainbow Trout the Brook Trout the Brook Trout the Shing—Tonic For Frayed Nerver that is There To Trouting that is There To Trouting that is There To Trouting the Open To Public ther-Son Fishing Week Proclaime (Editorial) the Bait, Flies, or Plugs the Bait, Flies, or Plugs the Florests and Wildlife the Place of Wildlife Management	By Hugh O'Neill June; By Dr. E. C. Nettles Aug.; Inland Fish Series Sep.; Inland Fish Series Oct.; Inland Fish Series Dec.; By R. W. Eschmeyer. Mar.; By Beverley W. Stras May; By J. J. Shomon May; Inland Fish Series May; By J. J. Shomon	p. p	6 21 20 20 27 8 4 8 9 13-14 4 16 18	No. 4	p. p. p. p. p. p. p. p.
ream—Prince of Panfish the Largemouth Bass the Smallmouth Bass the Rainbow Trout the Brook Trout Shing—Tonic For Frayed Nerver tout Prospects that is There To Trouting the Open To Public ther-Son Fishing Week Proclaime (Editorial) the Bait, Flies, or Plugs the Fish Differentiate Color? Forests and Wildlife the Place of Wildlife Management	By Hugh O'Neill June; By Dr. E. C. Nettles Aug.; Inland Fish Series Sep.; Inland Fish Series Oct.; Inland Fish Series Dec.; By R. W. Eschmeyer. Mar.; By Beverley W. Stras May; By J. J. Shomon May; Inland Fish Series May; By J. J. Shomon	p. p	6 21 20 20 27 8 4 8 9 13-14 4 16 18	No. 4	p. p
ream—Prince of Panfish the Largemouth Bass the Rainbow Trout the Brook Trout Finishing—Tonic For Frayed Nervestrout Prospects that is There To Trouting ist of Stocked Waters and Wate. Open To Public Cather-Son Fishing Week Proclaims ((Editorial) ive Bait, Flies, or Plugs an Fish Differentiate Color? Foresets and Wildlife the Place of Wildlife Management in Forestry an The Path of The Red Demon	By Hugh O'Neill June; By Dr. E. C. Nettles. Aug.; Inland Fish Series Sep.; Inland Fish Series Oct.; Inland Fish Series Nov.; Inland Fish Series Dec.; Inland Fish Series May; By By R. W. Eschmeyer. Mar.; By Beverley W. Stras May; By J. J. Shomon May; By J. J. Shomon May; By J. J. Shomon May; By F. M. Huddlestun. July; By Tom Farley Sep.; Int By F. Watts Feb.; By P. A. Herbert Mar.; By P. A. Herbert Mar.; By E. E. Rodger June;	p. p	6 21 20 20 27 8 4 8 9 1.13-14 4 16 18	No. 4	p. p
ream—Prince of Panfish the Largemouth Bass the Rainbow Trout the Brook Trout Finishing—Tonic For Frayed Nervestrout Prospects that is There To Trouting ist of Stocked Waters and Wate. Open To Public Cather-Son Fishing Week Proclaims ((Editorial) ive Bait, Flies, or Plugs an Fish Differentiate Color? Foresets and Wildlife the Place of Wildlife Management in Forestry an The Path of The Red Demon	By Hugh O'Neill June; By Dr. E. C. Nettles. Aug.; Inland Fish Series Sep.; Inland Fish Series Oct.; Inland Fish Series Nov.; Inland Fish Series Dec.; Inland Fish Series May; By By R. W. Eschmeyer. Mar.; By Beverley W. Stras May; By J. J. Shomon May; By J. J. Shomon May; By J. J. Shomon May; By F. M. Huddlestun. July; By Tom Farley Sep.; Int By F. Watts Feb.; By P. A. Herbert Mar.; By P. A. Herbert Mar.; By E. E. Rodger June;	p. p	6 21 20 20 27 8 4 8 9 1.13-14 4 16 18	No. 4	p. p
ishing—Tonic For Frayed Nerves rout Prospects Vant is There To Trouting— ist of Stocked Waters and Wate Open To Public— ather-Son Fishing Week Proclaims (Editorial) ive Bait, Flies, or Plugs— an Fish Differentiate Color?—— Forests and Wildlife— The Place of Wildlife Management in Forestry n The Path of The Red Demon— Appalachian Comeback	By Hugh O'Neill June; By Dr. E. C. Nettles. Aug.; Inland Fish Series Sep.; Inland Fish Series Oct.; Inland Fish Series Nov.; Inland Fish Series Dec.; Inland Fish Series May; By By R. W. Eschmeyer. Mar.; By Beverley W. Stras May; By J. J. Shomon May; By J. J. Shomon May; By J. J. Shomon May; By F. M. Huddlestun. July; By Tom Farley Sep.; Int By F. Watts Feb.; By P. A. Herbert Mar.; By P. A. Herbert Mar.; By E. E. Rodger June;	p. p	6 21 20 20 27 8 4 8 9 1.13-14 4 16 18	No. 4	p. p

